**Module 4 Homework Assignment**

1. A researcher claims that 62% of voters favor gun control.  State the null hypothesis and the alternative hypothesis in words.

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| ***Solution:*** | **Instructor Comments:** |

2. A researcher claims that 62% of voters favor gun control. Identify the null hypothesis *H*0 and the alternative hypothesis *H*1 using p.

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| ***Solution:*** | **Instructor Comments:** |

3. Carter Motor Company claims that its new sedan, the Libra, will average better than 30 miles per gallon in the city. Identify the type I error of the test.

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| ***Solution****:* | **Instructor Comments:** |

4. A medical school claims that more than 28% of its students plan to go into general practice. It is found that among a random sample of 130 students, 32% of them plan to go into general practice. Find the *p*-value for a test of the school’s claim.

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| ***Solution****:* | **Instructor Comments:** |

5. Determine whether the hypothesis test involves a sampling distribution of means that is a normal distribution, Student *t* distribution or neither. The sample data appear to come from a normally distributed population with *σ* = 28.

Claim: *μ* = 977.

Sample data: *n* = 25, = 984, *s* = 25. Explain.

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| ***Solution:*** | **Instructor Comments:** |

6. Among those who file tax returns, less than one-half file than through an accountant or other tax professional. A Fellowes survey of 1002 people who file tax returns showed that 48% of them file through an accountant or other tax professional. Find the value of the test statistic.

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| ***Solution:*** | ***Instructor Comments:*** |

7. In a sample of 100 M&M’s, it is found that 8% are brown. Use a 0.05 significance level to test the claim that of the Mars candy company that the percentage of brown M&M’s is equal to 13%. There are four steps to this problem. First, Identify the null and alternative hypotheses.

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| ***Solution:*** | **Instructor Comments:** |

8. (Refer to problem 7). Find the test statistic.

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| ***Solution:*** | **Instructor Comments:** |

9. (Refer to problems 7 and 8). Use the Standard Normal Table to find the *p*-value, critical value(s) and state the decision about the null hypothesis.

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| ***Solution:*** | **Instructor Comments:** |

10. (Refer to problems 7, 8, and 9). State the conclusion in non-technical terms.

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| ***Solution:*** | **Instructor Comments:** |